

Abstract of the Disclosure

A gasifier is disclosed combining a fixed bed gasification section where coarse fuel is gasified and an entrained flow gasification section where fine fuel is gasified. The fixed bed section includes upper and lower sections. Coarse fuel is devolatilized in the upper fixed bed section and subjected to elevated temperatures sufficient to crack and destroy tars and oils in the effluent gases. The entrained flow gasification section is disposed in a lower plenum adjacent the lower fixed bed section. A plurality of injection ports are configured to introduce oxygen, steam, or air into different sections of the gasifier to control temperature and operating conditions. Activated carbon may be formed in the upper fixed bed section and in the entrained flow section. The activated carbon may be used as a sorbent to remove pollutants from the effluent gases. The gasifier may be used with various coarse and fine fuel feedstocks.